DDOE
DISTRICT DEPARTMENT OF THE ENVIRONMENT

DISTRICT OF COLUMBIA

2010 NONPOINT SOURCE POLLUTION PROGRAM

ANNUAL REPORT

February 2011

District of Columbia
Department of the Environment
Watershed Protection Division

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I. Mission and Goals of the District of Columbia's Nonpoint Source Program

The mission of the District of Columbia's Nonpoint Source Program is to prevent and control nonpoint source pollution in the District's watersheds. Employing both regulatory and non-regulatory approaches, the Program works to safeguard the city's water and soil resources as well as the health and welfare of citizens using those resources.

Long-term goals and short-term milestones to mark progress toward those goals are outlined in the *District Nonpoint Source Management Plan II: Addressing Polluted Runoff in an Urban Environment* (2000). The Plan is aimed at reducing nonpoint source pollution from urban runoff, construction, and hydrologic/habitat modification and includes:

- Supporting activities that reduce pollutant loads from urban runoff, construction activity, combined sewer overflows and trash disposal for the purpose of attaining present designated uses by 2015 and future designated uses by 2025.
- Supporting programs and activities that strive to restore and maintain healthy natural habitat, species diversity and necessary base flow to all of the Anacostia River tributaries by 2015 and to all surface waters of the District of Columbia by 2025 by restoring degraded watersheds and preserving healthy ones.
- Coordinating the District Nonpoint Source Program efforts with other District, federal, not-for-profit, environmental advocacy, private sector programs and adjoining jurisdictions to deliver the best possible nonpoint source pollution prevention and control services in the District of Columbia with the resources available.
- Carrying out effective information and education campaigns on nonpoint source pollution prevention to targeted audiences who live, work, teach or visit in the District of Columbia and its watersheds, reaching at least ten thousand (10,000) individuals each year.

DC's Nonpoint source management program has also created three detailed Watershed Implementation Plans (WIPs) for three major watersheds in the District. Of these plans, the *Oxon Run WIP* (approved 2010) and the *Rock Creek WIP* (approved 2010) have been approved by EPA. Additionally, the District participated in the development of the Army Corps of Engineers facilitated Anacostia Watershed Restoration Plan which was released to the public in April of 2010. These plans lay out waterbody impairments, technically appropriate implementation projects, and timelines that guide DDOE in its work.

The District Department of the Environment (DDOE) assesses the health of all significant waterbodies in the District, and prioritizes water quality improvement efforts based on data gathered from water quality monitoring. DDOE then characterizes waterbody impairments and threats; these characterizations are included in the District of Columbia's Section 305(b) reports as required by the federal Clean Water Act. The reports describe many of the District waterbodies as not supporting their swimmable (primary contact recreation) and fishable (fish consumption) designated uses.

Urban stormwater runoff is a prevalent source of pollutants to District of Columbia waterbodies. Primary nonpoint source pollutants of concern include nutrients, sediment, toxicants (Heptachlor Epoxide and DDE), pathogens and hydrocarbons. The few waterbodies that partially or fully

support a designated use are also threatened by nonpoint source pollutants. A process to prioritized subwatersheds for nonpoint source implementation in the District can be found in the Watershed Implementation Plans referenced above. To properly address the water quality problems associated with the District's urban environment, the District amended its approved Nonpoint Source Management Plan (1989) and created the *Nonpoint Source Management Plan II: Addressing Polluted Runoff in an Urban Environment* (2000). This document outlines a comprehensive strategy for managing nonpoint source pollution in an urban environment in an effort to restore beneficial uses by the year 2025. The Plan sets goals and objectives of specific milestones that will be achieved.

This annual report is written in response to *Sections 319 (h)(8) and (11) of the Clean Water Act (33 USC 1329)*, for the purpose of documenting progress made in fiscal year 2010 by the District of Columbia in implementing its *Nonpoint Source Management Plan II: Addressing Polluted Runoff in an Urban Environment* (2000).

II. Regulatory Management

The District employs both regulatory and non-regulatory approaches to reach its nonpoint source milestones. The Branches within the Watershed Protection Division responsible for regulatory management are the Sediment and Stormwater Technical Services Branch and the Inspection and Enforcement Branch.

These branches aim to ensure that any development or construction activities occurring within the District properly control potential erosion or runoff from their sites and properly adhere to all federal and city laws relating to floodplains and waterways. In addition, they ensure that Best Management Practices (BMPs) are installed correctly and receive appropriate maintenance and upkeep.

A. Sediment and Stormwater Technical Services Branch

The Branch reviews construction and grading plans for stormwater management, erosion and sediment control, and flood plain management considerations. As required by EPA regulations regarding new construction permits, all new construction in the District must have Storm Water Pollution Prevention Plans (SWPPPS) that "identify all potential sources of pollution which may reasonably be expected to affect the quality of stormwater discharges from the construction site."

The District already has strong erosion and sediment control regulations in place, requiring an erosion and sediment control permit for any land disturbance over 50 square feet. In comparison, other jurisdictions require that these permits be filed when more than 5,000 square feet of soil are disturbed. Furthermore, the DDOE has published the *District of Columbia Soil Erosion and Sediment Control Standards and Specifications* and the *DC Storm Water Management Guidebook*. These documents are used by DDOE in the plan review process for new construction.

In FY2010 the Sediment and Stormwater Technical Services Branch accomplished the following:

- Reviewed 1530 building permit applications and plans for regulatory compliance.

- Processed 10 Environmental Impact Screening Forms (EISFs) after they were reviewed for regulatory compliance.
- Provided 2411 customers with technical assistance.
- Filed 35 Notices of Infraction (NOIs)

In addition to these regulatory actions, engineers from the Technical Services Branch regularly attend relevant trainings on new stormwater technologies. They also attend regional workshops related to stormwater control and Chesapeake Bay restoration efforts. Some examples of this include:

- One staff engineer attended a one-day STAC Workshop on "Strategies to Protect and Restore Urban Watersheds." The workshop was held at the US Green Council Building in Washington, DC.
- Six staff engineers attended a presentation on the "Terre Kleen TK18 Hydrodynamic Separator" given by consultants from the Terre Hill Stormwater Systems Company.
- Three staff engineers attended a two-day Bioretention Summit in Annapolis, MD. The two-day training was given by a consortium comprising the University of Maryland, Villanova University, and North Carolina State University.
- One staff engineer participated in an open panel discussion on a one-day workshop organized by the Chesapeake Bay Foundation to discuss the concept of "Nutrient Neutral Development" in relation to stormwater regulations in the Bay jurisdictions. The workshop was held at the Chesapeake Bay Foundation Office in Annapolis, MD.
- Three staff engineers participated in the Center for Watershed's webinar training on "Permeable Pavement" at the District Department of the Environment's 6th Floor Conference Room, Washington, DC.

DDOE inspects a Silva Cell connected to a bioretention cell outside of Casey Trees Headquarters in NE DC

B. Inspection and Enforcement Branch

The District has a strong Inspection and Enforcement Branch that inspects construction sites throughout the District to make sure they are in compliance with District regulations. DDOE regularly inspects existing stormwater management facilities to ensure that they are in proper working order. It also inspects Best Management Practices (BMPs) to ensure they are adequately maintained. In addition, the DDOE Inspection and Enforcement Branch is responsible for investigating citizen complaints relating to soil erosion and drainage problems, and recommending appropriate solutions.

DDOE also performs outreach to industrial and construction facilities through workshops, brochures, and site inspections. DDOE personnel use inspections to promote awareness of the

proper methods of facility maintenance for stormwater regulation compliance. To aid facilities in ensuring proper maintenance of stormwater management facilities, DDOE has established and published guidelines for their proper maintenance.

In FY2010 the Inspection and Enforcement Branch accomplished the following:

- Conducted 5679 inspections at construction sites for enforcement of erosion and sediment control and stormwater management regulations.
- Took 144 enforcement actions, including stop-work orders and civil infractions, to strengthen enforcement activities.
- Conducted 51 investigations for erosion, drainage and related complaints.
- Inspected 748 stormwater management facilities to ensure proper functioning of these facilities.
- Inspected 107 BMPs for proper maintenance.
- Began developing outreach materials, including brochures, web material and presentations.
- Continued to work with DCRA toward the inclusion of stormwater management in their Certificate of Occupancy process.

DDOE inspectors are now using toughbooks in the field. In addition, DDOE, Watershed Protection Division, is currently working on automating inspection forms for all Inspection and Enforcement operations as a move toward a total paperless process. Desktop computers will no longer be provided to inspectors since portable toughbooks have replaced them. This is expected to streamline regulatory operations by allowing inspectors to have a complete inspection history of any sites while in the field, including inspections related to other media.

III. Non-Regulatory Management

Through non-regulatory programs, the District educates community members about nonpoint source pollution and how their actions contribute to it, with the ultimate goal of changing personal behavior for an effective long-term solution. Additionally, the District tests and develops innovative approaches to urban nonpoint source pollution reduction, increases acceptance and implementation of Low Impact Development (LID), and provides support and financial incentives for citizens wishing to implement LID and pollution prevention techniques.

Planning and Restoration Branch
This Branch of the DDOE, Watershed Protection Division, sponsors and conducts non-regulatory programs and activities that protect and restore river, stream, and wetland habitats in the District and increase the ecological diversity of the District of Columbia and Chesapeake Bay watersheds. Some of this non-regulatory work includes:

- Wetland and river habitat creation and restoration programs
- Providing technical advice on the application of Low Impact Development (LID) and innovative Best Management Practices technology
- Administering RFPs to fund LID retrofits
- Education and outreach programs
- RiverSmart Rooftops program (Green roof incentive program)
- RiverSmart Homes program

- RiverSmart Schools program
- Pollution prevention programs

A. Habitat Restoration, LID and Watershed Planning

With the goal of changing personal behaviors to achieve an effective long-term solution, DDOE, Watershed Protection Division, educates community members about nonpoint source pollution and how their actions contribute to it. Additionally, the Planning and Restoration Branch tests and develops innovative approaches to urban nonpoint source pollution reduction, increases acceptance and implementation of Low Impact Development (LID), and provides support and financial incentives for citizens wishing to implement LID and pollution prevention techniques.

Green Roof Rebate/Retrofit Program

For the last two years the District has offered a rebate for installation of a new green roof or the retrofit of an existing roof. This program, offered through DDOE, provides $5 a square foot for the installation of a green roof on a new structure or existing roof less that 2,000 square feet in size (up to $20,000) and $7 a square foot for the retrofit of a green roof on older roofs over 2,000 square feet in size (no maximum dollar limit). In the upcoming year, DDOE will retool this rebate program to offer a set dollar rebate amount regardless of the roof size.

Additionally, the city has been aggressively retrofitting their existing rooftops with green roofs and installing vegetated roofs on new city-owned buildings. As a result of this push, Washington, DC is second only to Chicago in the square footage of green roofs installed. In 2010, DDOE accomplished the following:

- Installed green roofs on 12 District buildings, covering 90,650 sq. ft. of rooftops (approximately 2 acres).
- Installed a green roof retrofit on District Fire Engine House #6 covering 9,500 sq. ft.
- Installed a green roof at the Benning Library, covering 12,030 sq. ft.

Stream Restoration

Stream restoration is the act of modifying the current channel of a stream in an attempt to improve the environmental health and habitat of the waterway. Urban streams face immense pressure from high stormwater flows due to runoff from impervious surfaces. The erosion we see in urban streams is the stream's way of adjusting to accommodate the new (geologically) flow regime it is experiencing. Stream restoration attempts to create a new channel that is in stasis with the flows it experiences.

Bingham Run and Milkhouse Ford Projects

The purpose of these two restoration projects is to demonstrate the effectiveness of regenerative stormwater conveyances by installing a series of them along Oregon Avenue in Northwest D.C. A regenerative stormwater conveyance, also known as a coastal plain outfall, is a specialized type of low impact development technique that uses stream restoration techniques to create a dependable open channel conveyance with pools and riffle-weir grade controls to create a system of physical features, chemical processes, and biological mechanisms that greatly reduce erosive forces and positively impact the ecology of a drainage area. The Regenerative Stormwater

Conveyance installations will reduce erosion and decrease pollutants reaching Rock Creek by slowing down and infiltrating stormwater runoff from this roadway.
These projects are a unique partnership between the city and the National Park Service to control stormwater from District lands while restoring intermittent streams on National Park Service land. If successful, it is hoped that District Department of Transportation (DDOT) and District Water and Sewer Authority (DC WASA) will adopt these techniques in future roadway and storm sewer upgrades that are adjacent to or drain onto parkland or open space.

Nash Run

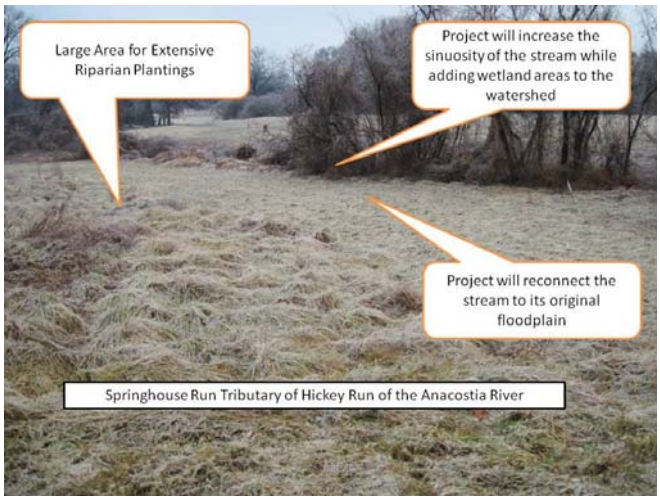
Nash Run is located in northeast Washington, DC, and is a first-order tributary of the Anacostia River. The headwaters of the stream are located in Prince George's County, Maryland, but 75% of the watershed is within the borders of the District. The stream is piped beginning in Prince George's County and outfalls east of Kenilworth Avenue in northeast DC. The Nash Run sewer shed encompasses a 229-acre area in the District, 112 acres (49%) of which is impervious.

The heavily urbanized character of the Nash Run watershed, and its consequent imperviousness, result in flashy and intense stream flows, even during the most moderate of storms. Considerable amounts of trash and debris wash out of the storm sewer system during rain events, choking portions of the stream and causing areas for ponding and mosquito breeding. The resulting hydrologic alterations have deteriorated the water quality of Nash Run and degraded natural habitat downstream of the outfall. A study on trash in the Anacostia River estimated that Nash Run produces approximately 3% of the total trash from the District that washes into the Anacostia River. Beginning in 2011, DDOE will fund the design of a system to capture trash and sediment at the end of the storm sewer system as well as the restoration designs for an 800-foot section of the stream valley using natural channel stream design techniques. DDOE plans to implement these designs in 2012.

Installing the end of pipe BMP, coupled with stream restoration at Nash Run, will improve water quality in the stream, improve the general appearance of the stream, reduce sediment and floatable pollution, and will improve conditions for terrestrial and aquatic life along the stream corridor. Once work is finally complete the stream will not only be an environmental improvement but will also be an aesthetic asset for the community that surrounds Nash Run.

Springhouse Run Stream Restoration

Springhouse Run is a remnant of one of the original tributaries to Hickey Run, a tributary of the Anacostia River, with a drainage area of approximately 100 acres. The majority of the tributary is stable, although it is highly altered and armored in most areas. The armoring has resulted in a stream with poor habitat value and very limited ability to trap sediment and uptake nutrients.



The Watershed Protection Division is coordinating the design of a stream and habitat restoration for the lower reach of Springhouse Run. The lower portion of the stream, from the Hickey Lane bridge to its confluence with Hickey Run, will be reconnected to its historic floodplain and its sinuosity will be restored. This portion measures approximately 1,200 feet in length and lies entirely within the U.S. National Arboretum. DDOE is partnering with the U.S. Department of Agriculture, Agricultural Research Service, which owns the Arboretum, to complete this project.

An additional component of this project is to construct a bioretention facility in the circular drive at the entrance to the Arboretum Visitor Center and additional bioretention facilities in the Visitor Center parking lot at the R Street entrance to the Arboretum.

Broad Branch Daylighting and Stream Restoration

Portion of park where Broad Branch will be daylighted from storm sewer

The goal of this project is to daylight a 1,600-foot portion of Broad Branch, a tributary to Rock Creek in Northwest DC. Daylighting a stream is the act of restoring to the open air some or all of the flow of a previously covered creek, or stormwater drainage. Daylighting this section of the Rock Creek watershed will improve water quality at the location and downstream water quality by exposing water to sunlight, air, soil, and vegetation, all of which help process and remove pollutants. Furthermore its restoration will reduce nutrient and sediment pollution from erosion caused by fast flowing stormwater by creating meanders and floodplain wetlands which will have wider cross-section and a greater channel depth than the pipe it will replace. Additional surface flow from adjacent streets and rooftops may be able to be directed to the area by creating curb cuts and redirecting storm sewers to the area, further slowing, cooling, and filtering stormwater in the subwatershed.

There are four governmental agencies involved in this project: the District Department of the Environment (DDOE), the Department of Transportation (DDOT), the District of Columbia Water and Sewer Authority (DC WASA), and the National Park Service (NPS). Additionally, local residents and a nearby school have expressed great interest in the project and will likely be involved in some aspect of the planting, invasive control, or watering.

Watts Branch Stream Restoration Project

The District Department of the Environment has partnered with the U.S. Fish and Wildlife Service and the Natural Resources Conservation Service of USDA to restore Watts Branch, a tributary of the Anacostia River, from Southern Avenue to Minnesota Ave. NE. Restoration work will encompass 1.7 miles of project work along the largest stream in the District to flow into the Anacostia River. Stream restoration will reshape the channel to reduce channel erosion, create pools and riffles to support aquatic life, and reestablish streamside vegetation. In total the project will follow the natural channel stream design process and will add over 10,000 native trees and shrubs along the stream corridor. Stream restoration is one part of a multi-agency, collaborative effort to improve water quality of the Watts Branch watershed and the Anacostia River. Other projects include rehabilitating sanitary sewers, constructing stormwater management facilities, and reducing the amount of stormwater runoff from impervious areas.

The Watts Branch Stream Restoration work began in 2010 with a large invasive plant species control and removal effort. The entire stream project is broken up into 11 distinct project areas and all 11 project areas are expected to be completed by the end of the 2011 calendar year.

Pope Branch Stream Restoration Project

The District Department of the Environment in partnership with the District Department of Parks and Recreation and the District Water and Sewer Authority are undertaking a restoration project for the Pope Branch tributary of the Anacostia River. Pope Branch is a first order tributary of the Anacostia that suffers from high rates of erosion due to high stormwater flows into the stream during rain events. The high rate of erosion has caused sewer lines which run through the stream valley to become exposed. Partner agencies are

undertaking a restoration project for 0.8 miles of the above ground stream corridor set to begin in 2011.

Restoration work along Pope Branch will involve installing a new sewer line in the most upstream portion of the stream valley using directional drilling. Upon completion of sewer line work the DDOE and DPR funded portion of the project will involve major stream restoration work which will use base flow channel design for the restoration work. The base flow channel design involves reconnecting the stream to its floodplain by installing sand seepage rock weir in the stream valley so that weirs will assist in controlling and filtering water in the stream. Reconnecting the stream to its floodplain through the installation of the sand seepage weirs will also allow for the creation of a wetland forest community in the stream valley to further increase both water quality conditions in the stream as well as habitat features in the corridor.

In addition to the stream project DDOE, with Stimulus funds, will be installing three regenerative stormwater conveyances that lead into the stream valley and is working with residents and local non-profits to reinvigorate the Pope Branch Park Restoration Alliance.

B. Environmental Education and Outreach

DDOE, Watershed Protection Division, sponsors and conducts environmental education and outreach activities targeted to teachers, environmental educators and students throughout the District. These programs and resources include the following:

Environmental Education Resource Center – This center provides resources and materials that teachers and other environmental educators may use to enhance the classroom curriculum and implement conservation projects.

- 37 teachers and 365 students received 402 cloth shopping bags from the resource center at the Anacostia Fair.
- 37 teachers received educational resources and curriculums, maps, posters, and magnetic clips, totaling 370 pieces of material, from the resource center at the Anacostia Fair.
- 365 students received posters, maps, rulers, pencils and activity booklets, totaling 1,825 pieces of material, from the resource center at the Anacostia Fair.
- 22 teachers at Ludlow-Taylor ES received PLT and Project WET activity guides from the center through participation in an 8-hour certification workshop.

Conservation Education (Project Learning Tree, Project WET, and Project WILD) – These internationally recognized programs are utilized to train educators in innovative techniques for exploring a wide range of environmental concepts with students and teaching critical thinking skills that lead to environmental stewardship (grades K-12).

- Provided 22 teachers at Ludlow-Taylor ES with an 8-hour Project Learning Tree certification workshop.

Teacher Training Workshops – Teacher-training workshops in environmental education, provide teachers with continuing education credits through accredited environmental curriculums that support the DCPS teaching and learning standards and provide students with meaningful environmental education experiences via outdoor activities and events.

- In the spring of 2010, The Student Conservation Association (SCA) worked in partnership with the District Department of the Environment (DDOE) to provide:
  - 24 teachers with four teacher-training workshops to engage students in their environment using their conservation sites
  - 11 teachers with in-class curriculum and teaching support
  - 208 students with environmental education programming
- WPD and NOAA Watershed Wise DC partners presented a professional development workshop for teachers who participated in the Watershed Wise DC Program. The workshop, held in Rock Creek Park near Pierce Mill on October 2, 2010, focused on macroinvertebrates and stream assessment. 18 teachers and seven presenters from partnering organizations participated.

RiverSmart Schools – RiverSmart schools works with applicant schools to install Low Impact Development (LID) practices to control stormwater. These practices are specially designed to be functional as well as educational in order to fit with the school environment. Additionally, schools that take part in the RiverSmart Schools program receive teacher training on how to use the sites to teach to curriculum standards and how to properly maintain the sites.

- Brent ES, Anne Beers ES, Stokes ES, St. Peters School, Center City Public Charter School and Banneker High School attended a 16 hour training series on stormwater runoff, soils, composting, the value of trees, natives vs. non-native plants, wildlife habitat, the Chesapeake Bay watershed, and how to start a school garden. 25 teachers received the training, provided by DDOE/WPD and Student Conservation Association.
- A Volunteer Maintenance Program was developed for RiverSmart schools to assist teachers in maintaining the gardens and continuing to use the gardens to teach about the Bay. There were 38 teachers and volunteers in attendance for the 16 hour training. The course was taught by Common Good City Farm and DDOE/WPD staff. A total of 22 volunteers were placed in 18 schools.
- DDOE provided funding for the Center City Public Charter School project through a $50,000 donation from FedEx to create an upland forest, outdoor classroom, raised bed vegetable and herb garden and butterfly garden. The Center City PCS ground-breaking ceremony and work day was held on May 18, 2010. Eleven raised beds were built and filled with soil. Grass was removed and the soil was tilled and amended with aggressive compost on the planting site. Three trees, shrubs and about 100 mainly native plants were planted by 30 FedEx

Completed outdoor classroom at Center City with salvaged Locust bole

Students at Center City Public Charter School prepare the ground for a native plant garden

and NWF volunteers, and 40 students. The students and volunteers received instruction on how to install various plants. A brief ceremony was conducted with remarks by the DDOE Director and school and FedEx dignitaries.

The District of Columbia Environmental Education Consortium (DCEEC) – DDOE helps to organize a network of environmental educators throughout the city so that ideas and resources can be shared among them. DCEEC provides opportunities for networking, event coordination and program partnering among its members. The members provide environmental expertise, professional development opportunities, curricula and resources, and hands-on classroom and field studies to District schools.

Students aboard the *Susquehanna* for a tour of the Anacostia River as part of the Anacostia Fair

- In the Healthy Schools Act legislation, DDOE is tasked to develop an Environmental Literacy Plan (ELP) with other DC agencies (OSSE, DCPS, DPR) and stakeholders. A working group of DCEEC members has been meeting since June, conducting extensive background research on what other states are doing, how other states define environmental literacy, and which stakeholders should be involved in the process.

The Anacostia River Environmental Education Fair - This annual outdoor event offers District school children a variety of educational experiences designed to promote in them a conservation and stewardship ethic toward their watersheds, the Anacostia and Potomac Rivers, and the Chesapeake Bay. The fair also provides additional resources to District teachers interested in enriching their curriculum through environmental studies.

- The Anacostia Fair took place on Friday, May 14, 2010. Nine DCPS schools, 37 teachers, 365 students, and 17 exhibitors were a part of the event. Students took part in activities on and off the water and learned about human behaviors and the connections between the health of their watersheds and the Bay.

Meaningful Watershed Educational Experiences (MWEEs)

- Alice Ferguson Foundation (AFF), with DDOE funding, successfully conducted seven overnight field-study trips for 145 4th and 5th grade students at Hard Bargain Farm from May 11 through June 11, 2010.
- The Anacostia Watershed Society (AWS), with DDOE funding, successfully provided 120 students with field experiences on the Anacostia River as well as restoration experiences that will impact their local watershed and the Chesapeake Bay.
- DDOE/WPD provided a hands-on meaningful watershed experience for 300 students at John Tyler Elementary School by engaging them in a schoolyard garden installation project.

DDOE/WPD provided $21,500 for plants, soil, tools, and classroom materials that will help teachers to integrate the site into the curriculum. Volunteers from the Navy and City Year AmeriCorps assisted students, teachers and parents with the planting of 8 trees, 40 shrubs and 2000 plants on September 18 and 24.

- WPD conducted a Watershed Aquatics Environmental Education Camp - August 2-6, at the Boys and Girls Club of Greater Washington with the Fisheries and Wildlife Division. A total of 40 campers and youth summer workers participated from 9 to 2. The following topics were covered: Introduction to Watershed and Aquatics, Fish Habitat and Fishing, Wetlands, and Native Plants. A boat tour on the Anacostia was provided and a native plant garden was installed by the campers at the Boys and Girls Club.

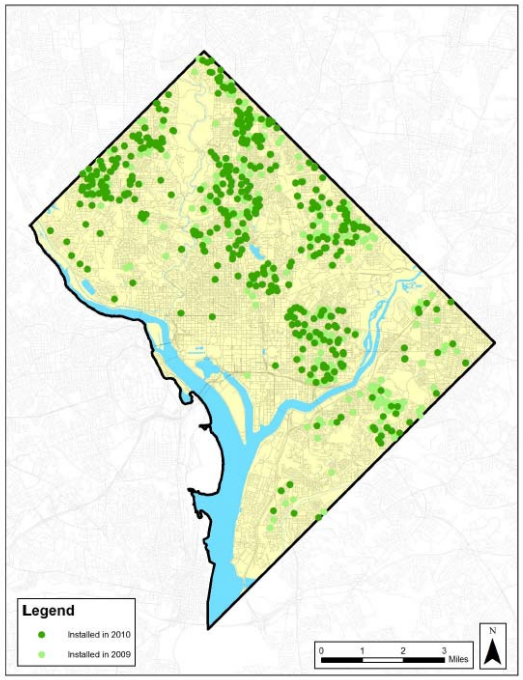
C. Pollution Prevention

RiverSmart Homes Program

Over the past three years DDOE has developed a Low Impact Development (LID) retrofit program aimed at single family homes. The program started with eight demonstration sites – one in each Ward of the city. It then expanded to a pilot program in the Pope Branch watershed of the city. The program is now mature and open city-wide.

Through this program, DDOE performs audits of homeowner's properties and provides feedback to the homeowners on what LID technologies can be safely installed on the property. The city also offers up to $1,600 to the homeowner to help cover the cost of installation of any LID the homeowner chooses. Currently the program offers five different landscaping items including shade trees, native landscaping to replace grass, rain gardens, rain barrels and permeable pavement.

Appendix C: map of geocoded rain barrel installation sites



The District has recognized the importance of targeting homeowners for pollution reduction measures because the residential property is the largest single land use in the city and is the slowest of all construction areas to be redeveloped. FY2010 accomplishments include the following:

- Provided District residents with 388 rain barrels
- Planted 531 shade trees
- Installed 12 rain gardens

- Implemented BayScaping at 65 properties
- Added pervious pavers to one property.

In FY11, DDOE will increase its implementation of RiverSmart Homes across the city, aiming for 1,000 rainbarrel installations, 250 raingarden and bayscaping installations, and over 600 shade trees.

Tree Planting

The District of Columbia has been called "The City of Trees." It has a tree canopy cover of 35 percent, which is high for a dense urban environment, but is lower than the canopy cover has been historically – even when the city had a higher population density. In an effort to improve air and water quality, reduce the urban heat island effect, and offset greenhouse gas emissions, the city has adopted a 40 percent tree canopy goal. Currently, DDOE and the Urban Forestry Administration (UFA) are drafting and Urban Tree Canopy Plan that lays out concrete actions to achieve the canopy goal. We have projected that we will need a 25 percent increase in tree planting over current efforts to achieve this goal. Currently, UFA, which maintains the city's street trees, plants an average of 4150 trees annually.

DDOE, with help from non-profit partners such as Casey Trees and Washington Parks and People, plants trees on private, federal, and other District lands. DDOE and its partner's planting efforts have added 2476 trees to the District in 2010. FY2010 accomplishments include the following:

- Planted 252 trees in the Watts Branch sub-watershed through an upland tree-planting grant to plant 600 trees in the watershed.
- Planted 531 trees as part of the RiverSmart Homes Program
- Planted 12 trees at RiverSmart Schools
- Planted 663 trees through tree rebates funded by the 319 grant program
- Planted 418 trees through community tree planting (Casey Trees funded)

Trash Removal

Trash removal, although having a minimal impact on pollutant loads, is an excellent activity for involving the public in restoration work and in generating watershed stewards. Many of these projects are small and can be easily and safely accomplished by teams of volunteers in one or two days. FY2010 accomplishments include:

- DDOE All Hands Work Day; 200 volunteers; estimate 4 tons of trash removed in Fort Dupont Sub-watershed
- MLK Jr. Clean-up Service Day; 250 volunteers; 3-4 tons of trash removed in Pope Branch Sub-watershed
- Earth Day Clean-up; 35 volunteers; 50 bags of trash removed in Nash Run Sub-watershed

Education of Public on Pet Wastes/Enforcement of Pet Waste Regulations

DDOE has developed educational materials such as fliers and videos that inform citizens of their legal obligations to manage pet waste, proper application and disposal of fertilizers, and the use of landscaping to control storm water runoff. These materials are regularly distributed at public events such as community meetings, Earth Day celebrations, and community cleanup days. In

addition, this information is distributed door to door in communities where storm drain marking is taking place. Finally this information is available on the DDOE website.

Integrated Pest Management and Nutrient Management

DDOE has developed an education and outreach program on Integrated Pest Management (IPM) and Nutrient Management. The purpose of the program is to better inform the public on the proper use and disposal of pesticides and on the use of safer alternatives. The program provides education and outreach activities designed to property owners and managers about environmentally sound practices with regard to the use of pesticides in the yard or garden and the introduction of "good" pests into the landscape. Through DDOE's Nutrient Management Program, the property owners receive education regarding the proper amount of fertilizer to use on a lawn. In addition to fertilizer use, this program addresses the proper way to mow, the proper use of mulch, and the effects of applying too much mulch.

Furthermore, the DDOE Pesticide Management Program trains commercial applicators in the legal and safe appliance of pesticides and herbicides. Commercial applicators must receive a certification through the program to legally apply pesticides and herbicides in the District. A part of this program involves the use of IPM.

WPD Storm Drain Marker Program

Students from Center City Elementary school mark a storm drain in the Trinidad neighborhood

In FY2010, the DDOE Watershed Protection Division installed 1,023 storm drain markers throughout the District of Columbia with private citizens, individuals from various volunteer groups and DCPS school groups.

Low Impact Development (LID)

Low Impact Development Practices are focused on four main practices: cistern installation, establishment of bioretention cells, retrofit of vegetated (green) roofs and installation of pervious pavers.

In FY2010, DDOE/WPD partnered with Casey Trees to create a multi-tiered green infrastructure

WPD staff tour a 319 funded cistern at the Casey Trees

demonstration site at Casey Trees Headquarters at 3030 12th St NE. This project created a destination showcase on the commercial main street in the Brookland neighborhood, within walking distance to a metrorail stop. This site is now set up to illustrate how a high-density, small-footprint redevelopment is able to manage all the annual runoff on site. Green infrastructure on this project begins with rooftop treatment of stormwater with three varieties of green roof systems (2,500 square feet) including trays with plant plugs, trays with mature plants, and built-in-place pre-grown mats. The downspouts from the non-vegetated roof areas drain to a large onsite bioretention (1,023 square feet), as does the adjacent parking lot. Downspouts serving the vegetated roofs are routed to a harvest system (1,500 gallons) and that collected water provides drought irrigation for bioretention and curbside bioretention at 12th St. NE. The site is designed to manage the one-inch design event and is expected to retain, use and infiltrate 35,000 gallons of stormwater annually.

Further accomplishments include:

- Completed schoolyard retrofit with bioretention at Tyler DCPS.
- Installed curbside bioretention and LID retrofits along 12th St. NE.
- Installed a large volume cistern at Common Good City farm to harvest stormwater runoff to irrigate the community garden

319 funded large volume cistern at Common Good City Farm harvests stormwater runoff

Garden area at John Tyler prior to planting

D. Nonpoint Source Pollution Watershed Implementation Plans

The District Department of Environment, Watershed Protection Division, is responsible for watershed management planning within the District of Columbia. The Division manages these

activities in accordance with its mission to conserve the soil and water resources of the District of Columbia and to protect its watersheds from nonpoint source pollution.

By strengthening its existing programs and continuing to seek innovative solutions for reducing nonpoint source pollution in an urban setting the District of Columbia continues to move steadily toward reaching the goals outlined in its Nonpoint Source Pollution Watershed Implementation Plans.

The tables below include and describe the coordinated activities conducted in designated watersheds and sub-watersheds to meet those goals. Accomplishments in fiscal year 2010 include the following:

Rock Creek Watershed Activities

Rock Creek Watershed Activities

Activity	Description	Status	Output (quantity)	Partners	Funding
130 gallon rain barrel installations	As part of the RiverSmart Homes program, DC Greenworks installs 130 gallon rain barrels on residential properties.	Completed	193	DC Greenworks	MS4
Shade tree installation	As part of the RiverSmart Homes program, Casey Trees installs medium to large shade trees on residential property.	Completed	95	Casey Trees	ARRA
BayScaping installation	As part of the RSH program, BayScaping is installed to replace existing turf.	Completed	16 properties average 120 square feet per property	Alliance for the Chesapeake Bay	ARRA
Rain Garden installation	As part of the RiverSmart Homes program, rain gardens are installed to replace existing turf.	Completed	14 rain gardens installed average 50 square feet per property	Alliance for the Chesapeake Bay	ARRA
Broad Branch Stream Daylighting	Daylighting (restoring to the open air) the flow of a previously covered portion of	Designs completed. Working on MOUs for installation and	1,600 linear feet of stream restored. Four bioretention facilities treating about 1.8 acres.	DDOT, Peruvian Embassy, NPS	319, Bag Bill Revenue

Rock Creek Watershed Activities					
Activity	**Description**	**Status**	**Output (quantity)**	**Partners**	**Funding**
	Broad Branch.	Environmental Assessment (EA)			
Installation of two regenerative stormwater conveyances (RSC): Peruvian Embassy	Type of LID that uses stream restoration techniques to create a dependable open channel conveyance that greatly reduces erosive forces and positively impacts the ecology of the treated area.	Designs completed. Projects will be installed with the Stream Daylighting.	2 regenerative conveyances installed with a combined length of 1300 linear feet.	Peruvian Embassy	319, Bag Bill Revenue
Bingham Run Regenerative Stormwater Conveyance	One RSC to treat and stabilize NPS parkland receiving stormwater runoff from Oregon Avenue.	30% designs are complete and the project is awaiting the completion of an EA by the NPS.	1 regenerative conveyance installed with a length of 950 linear feet.	NPS, DDOT	319
Milkhouse Ford Regenerative Stormwater Conveyance	One RSC to treat and stabilize NPS parkland receiving stormwater runoff from Oregon Avenue.	30% designs are complete and the project is awaiting the completion of an EA by the NPS.	1 regenerative conveyance installed with a length of 1800 linear feet.	NPS, DDOT	ARRA
Klingle Run Restoration	Stream restoration of Klingle Run and the removal of a roadway next to Klingle Run which is to be replaced with a bike path and LID.	60% designs are complete. An EA has been completed. The project is waiting on funding.	3,100 linear feet of stream restored. At least 0.75 acres of impervious surface removed and 1.4 acres of stormwater treated	DDOT, NPS	DDOT
Beach Drive LID	LID retrofits along Beach Drive NW to treat uncontrolled stormwater into Fenwick Branch.	60% designs are complete. The project is waiting on funding.	At least 1 acre of stormwater treated.	DDOT, NPS	MS4

Anacostia Watershed Activities

Anacostia Watershed Activities					
Activity	**Description**	**Status**	**Output (quantity)**	**Partners**	**Fund -ing**
130 gallon rain barrel installations	As part of the RiverSmart Homes program, DC	Completed	93	DC Greenworks	MS4

Anacostia Watershed Activities					
Activity	**Description**	**Status**	**Output (quantity)**	**Partners**	**Fund-ing**
	Greenworks installs 130 gallon rain barrels on residential properties.				
Shade tree installation	As part of the RiverSmart Homes program, Casey Trees installs medium to large shade trees on residential property.	Completed	63	Casey Trees	ARRA
Pervious Paver installation	As part of the RiverSmart Homes program, pervious pavers are installed to replace existing impervious surface on residential property.	Completed	1 property	Alliance for the Chesapeake Bay	ARRA
BayScaping installation	As part of the RiverSmart Homes program, BayScaping is installed to replace existing turf.	Completed	23 proper-ties average 120 square feet per property	Alliance for the Chesapeake Bay	ARRA
Rain Garden installation	As part of the RiverSmart Homes program, rain gardens are installed to replace existing turf.	Completed	12 rain gardens installed average 50 square feet per property	Alliance for the Chesapeake Bay	ARRA
RiverSmart Schools Program: Stokes Elementary	Bayscaping and edible forest garden installation with native shrubs. A large bioretention/rain garden will collect runoff from the parking lot. Also slows runoff and filters any pollutants that would run down	30% completed. Contractors are ready to do work on the bioretention cell.	3 fruit trees planted; 20 native shrubs planted at the bank of the steep slope. Bioreten-tion facility	Washington Youth Garden	319

Anacostia Watershed Activities					
Activity	**Description**	**Status**	**Output (quantity)**	**Partners**	**Fund-ing**
	the parking lot hill.		treating about 0.5 acres.		
RiverSmart Schools Program: Anne Beers Elementary 	Installation of butterfly garden and living wall using Filtrexx filter soxcks filled with compost growing media.	90%	350 sq. ft. of native planting	Cheryl Corson Design, LLC	319
	Installation of Green Roof	Completed	12,030 sq. ft. roof	DC Public Libraries	ARRA
Benning Library					

Watts Branch Sub-watershed Activities

Watts Branch Sub-watershed Activities					
Activity	**Description**	**Status**	**Output (quan-tity)**	**Partners**	**Fund-ing**

Upland tree planting 	Upland tree planting grant to plant 600 trees in the watershed and do job training for area youth	Com-pleted on Sept. 30, 2010	252 trees in the water-shed from Jan. 1-Sept. 30, 2010	Washing-ton Parks and People	NFWF
Storm Drain Marking	Marking all storm drains in the Watts Branch sub-watershed with labels identifying pollutants that drain into the Anacostia River	In progress; 50% complete	685 total storm drains	Green Summer	NFWF
H.D. Woodson High School	Installation of Cisterns	In progress		DCPS Office of Public Facilities Manage-ment	ARRA

Fort Dupont Sub-watershed Activities

Fort Dupont Sub-watershed Activities					
Activity	**Description**	**Status**	**Output (quantity)**	**Partner**	**Fund-ing**
DDOE All Hands Work Day	A clean-up event in Fort Dupont Park	Com-pleted on	200 volun-teers; estimated	National Park Service	319

	to remove trash from the park and to plant trees and native shrubs	May 6th, 2010	4 tons of trash removed; maintenance & planting for 9 bioretention cells		
Storm Drain Screen Installation	Installation of trash screens on catch basins in the Ft. Dupont watershed			Earth Conservation Corps	

Pope Branch Sub-watershed Activities

Pope Branch Sub-watershed Activities

Activity	Description	Status	Output (quantity)	Partners	Funding
MLK Jr. Clean-Up Service Day 	Community Clean-Up Day	Complete	250 Volunteers; 3-4 Tons of trash; invasive species removal	DC Sierra Club, UFA-DDOT, DPW, ANC 7A, Penn Branch Civic Association	319

Nash Run Sub-watershed Activities

Nash Run Sub-watershed Activities

Activity	Description	Status	Output (quantity)	Partners	Funding
Earth Day Clean-Up	A trash clean-up activity along an 800	Completed on April 24th, 2010	35 Volunteers, 50 bags of	Anacostia Watershed	319

	foot stretch of stream		trash	Society, Eastland Gardens Flower Club	

Oxon Run Watershed Projects

Oxon Run Watershed Projects					
Activity	**Description**	**Status**	**Output (quantity)**	**Partners**	**Funding**
130 gallon rain barrel installations	As part of the RiverSmart Homes program, DC Greenworks installs 130 gallon rain barrels on residential properties.	Completed	5	DC Greenworks	MS4
Shade tree installation	As part of the RSH program, Casey Trees installs medium to large shade trees on residential property.	Completed	1	Casey Trees	ARRA
BayScaping installation	As part of the RSH program, BayScaping is installed to replace existing turf.	Completed		Alliance for the Chesapeake Bay	ARRA
Rain Garden installation	As part of the RiverSmart Homes program, rain gardens are installed to replace existing turf.	Completed	1	Alliance for the Chesapeake Bay	ARRA
Oxon Run Trail	Rehabilitate and	30% designs	Nine bio-	DDOT,	Funds have

Oxon Run Watershed Projects					
Activity	**Description**	**Status**	**Output (quantity)**	**Partners**	**Funding**
Rehabilitation Project	connect bike trails in Oxon Run Park and Include LID techniques throughout the project, including bio-retention cells and permeable pavement and tree planting.	have been completed and DC Department of Transportation is putting the 2005 designs out for bid.	retention areas and 1 acre of new tree planting	Department of Parks and Recreation	not yet been identified for the LID portion of this project.
Bald Eagle Recreation Center Rehabilitation Project	Include bio-retention cells and permeable paving to absorb stormwater from this facility and prevent runoff from causing erosion on NPS land	Coordination with OPEFM and conceptual designs		Department of Parks and Recreation and OPEFM	Stormwater Enterprise Funds
District Curb Alternative	Work with community to redesign a residential street as green street	Project is about 60% complete and will be finished in September 2011	Conceptual Designs for Green Streets and Community Enthusiasm for new Street Design	Casey Trees	Stormwater Enterprise Fund

Anacostia CSO Watershed Activities

Anacostia CSO Watershed Activities

Activity	Description	Status	Output (quantity)	Partners	Funding
130 gallon rain barrel installations	RiverSmart Homes program, DC Greenworks installs 130 gallon rain barrels on residential properties.	Completed	97 rain barrels installed	DC Greenworks	Bag bill
Shade tree installation	RiverSmart Homes program, Casey Trees installs medium to large shade trees on residential property.	Completed	48 shade trees planted	Casey Trees	ARRA
BayScaping installation	RiverSmart Homes program, BayScaping is installed to replace existing turf.	Completed	26 properties average 120 square feet per property	Alliance for the Chesapeake Bay	ARRA
Rain Garden installation	RiverSmart Homes program, rain gardens are installed to replace existing turf.	Completed	15 rain gardens installed average 50 square feet per property	Alliance for the Chesapeake Bay	ARRA
Green Roof Rebate	As part of RiverSmart Rooftops program, vegetated roof systems are installed.	Completed	Green roofs installed on 12 buildings, covering 90,650 sq.ft .of rooftops (approximately 2 acres)	DC Greenworks and Anacostia Watershed Society	319 & ARRA
Green Roof Municipal retrofit	Green roof retrofit on District Fire Engine House #6	Completed	Green roofs installed on District Fire Engine House #6 covering 9,500 sq.ft.	DC Fire & EMS	ARRA
Green School Yard, bioretention	School yard retrofit with bioretention	Project completed	Extensive pavement removal, rain garden, bayscaping	Tyler DCPS	319

Anacostia CSO Watershed Activities					
Activity	**Description**	**Status**	**Output (quantity)**	**Partners**	**Funding**
Green School Yard, bioretention	School yard retrofit with bioretention	Design completed		Ludlow-Taylor DCPS	319
Large Volume Cistern, Bioretention	Harvest stormwater runoff to irrigate community garden	Design complete, bioretention completed, harvest structure in place, cistern ordered	¼ acre stormwater captured and retained	Common Good City Farm	319
Curbside Bioretention	LID retrofits along 12th Street NE.	Completed	1/8th of an acre of stormwater captured and retained.	Casey Trees, DDOT, NPS	319
Canal Park: large scale harvest/reuse system	Converting three acres of parking lots to a public park.	90% designs are complete. The project is waiting on funding.	3 acre stormwater harvest/reuse park with capacity to receive rooftop runoff from surrounding proposed development, potential future capacity up to 10 acres.	DMPED, CPDA	Technical advisory role
Georgia Ave Great Streets	Bioretention, permeable paving and expanded tree boxes in Street reconstruction to retain stormwater runoff in the PROW.	Designs are complete. Construction has been mobilized. Project approximately 30% complete.	Approximately 1/2 an acre of PROW stormwater runoff retained/treated on site.	DDOT, NPS	Technical advisory role

Summary

The District of Columbia's Nonpoint Source Program meets the challenges of the highly urbanized setting within the District by seeking and employing innovative solutions for reducing nonpoint source pollution. With the help of creative partnerships and cutting-edge technologies, the District will continue to make significant progress toward achieving its goals. In FY2011 the District of Columbia will work to strengthen its existing programs for regulation and enforcement, stream and wetland restoration, education and outreach and pollution prevention. The Nonpoint Source Program will continue to provide technical assistance and resources that that will improve the water quality District's waters.

Appendix A: Financial Information

Grants	Source	Federal funds	Local matching funds
Section 319 Nonpoint source grant	US Environmental Protection Agency	$1,205,900	$803,934
Chesapeake Bay Implementation grant	US Environmental Protection Agency	$767,000	$767,000
Targeted Watershed Grant – Watts Branch watershed restoration	National Fish and Wildlife Foundation	$650,000	
Community Based LID Retrofit Campaign: RiverSmart Washington	National Fish and Wildlife Foundation	$800,000	

Appendix B: Agency Partners

District of Columbia - Lead Agency:
Department of the Environment, Watershed Protection Division

District Government:
DC Department of Parks and Recreation (DPR)
DC Department of Public Works (DPW)
DC Department of Transportation (DDOT)
Deputy Mayor's Office for Planning and Economic Development
DC Office of Planning (OP)
DC Public Schools (DCPS)
DC Soil and Water Conservation District (DCSWCD)
DC Water and Sewer Authority (WASA)

Federal Government:
Architect of the Capitol
National Park Service (USNPS)
US Army Corps of Engineers (USACE)
US Fish and Wildlife Service (USFWS)
US Department of Agriculture Natural Resources Conservation Service (USDA-NRCS)
US Environmental Protection Agency (EPA)
US Environmental Protection Agency, Chesapeake Bay Program (CBP)
US Geological Survey (USGS)
Various federal facilities

Local Groups:
Anacostia Watershed Society (AWS)
Casey Trees Endowment
DC Greenworks
FORCE, Washington, DC
Interstate Commission on the Potomac River Basin (ICPRB)
Living Classrooms of the National Capital Region
Low Impact Development Center, Inc.
Metropolitan Washington Council of Governments (MWCOG)
Student Conservation Association (SCA)
Sustainable Community Initiative (SCI)
Washington Parks and People